

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

**POND SEALING OR LINING
FLEXIBLE MEMBRANE**

(No.)

CODE 521A

DEFINITION

A manufactured hydraulic barrier consisting of a functionally continuous sheet of synthetic or partially synthetic, flexible material.

PURPOSE

To control seepage from water and waste impoundments for water conservation and environmental protection.

CONDITIONS WHERE PRACTICE APPLIES

On ponds, constructed wetlands, and water storage structures that require treatment to control seepage rates within acceptable limits.

On waste storage and waste treatment facilities--built in or of excavated earth--that require treatment to prevent migration of contaminants from the site.

CRITERIA

Structures to be lined shall have been constructed to meet all applicable Natural Resources Conservation Service (NRCS) standards. All inlets, outlets, ramps, and other appurtenances may be installed before, during, or after the liner placement but shall be done in a manner that does not damage or impair the proper operation of the liner.

All flexible membranes shall be certified by the manufacturer to be suitable for the intended use.

Design of the flexible membrane shall be in accordance with manufacturer's

recommendations. All flexible membrane installations shall meet the material and installation requirements of the plans and specifications provided for each installation, and shall be certified by the installer.

Minimum Criteria for Membranes	
Type	Limiting Parameter
High density polyethylene (HDPE)	40 mil thickness
Linear low density polyethylene (LLDPE)	40 mil thickness
Polyvinyl chloride (PVC)	30 mil thickness
Geosynthetic clay liner (GCL)	0.75 lb./sq. ft. (bentonite)
Ethylene propylene diene terpolymer (EPDM) synthetic rubber	45 mil thickness

All flexible membrane shall have a cover of select cover materials not less than 6 inches for the proper performance, protection, and durability of the installation. In areas that will be traveled by livestock, the cover materials shall be not less than 1 foot. Cover soils shall not contain sharp, angular stones or any objects that could damage the liner. Maximum allowable particle size of soil cover material shall be 3/8 inch unless the liner is cushioned by a needle-punched, non-woven geotextile. Cover materials shall be stable under all operational and exposure conditions.

Subgrade preparation shall conform to the manufacturer's recommendations. Subgrade materials shall not contain sharp, angular stones

or any objects that could damage the liner or adversely impact its function.

All structures shall be fenced to protect the liner from damage and for the safety of humans, livestock, wildlife, and pets.

All structures will be protected from wildfires and prescribed burns.

Manufacturer recommendations shall be followed with regard to protection from weather and exposure.

If venting is used, the manufacturer's recommendations shall be followed regarding vent type and spacing.

CONSIDERATIONS

Venting should be considered if gas build-up under the liner is anticipated.

If high water tables could adversely affect the proper functioning of the facility, interceptor or relief-type drainage systems should be considered to control uplift pressures.

PLANS AND SPECIFICATIONS

Plans and specifications shall be prepared for specific field sites in accordance with this standard and shall describe the requirements for applying the practice to achieve its intended uses.

OPERATION AND MAINTENANCE

A plan for operation and maintenance of the liner shall be prepared.